=> set pag scr;act t1/a;d 20 8 7 3 .finalreport;d acc 4067061 4234926 4258421 4745564 5500806 5694322 .finalreport
SET COMMAND COMPLETED

L1 QUE PLU=ON MEASUR##### OR MONITOR#####
L2 QUE PLU=ON SENS#### OR DETECT#####
L3 QUE PLU=ON L1 OR L2
L4 QUE PLU=ON CAR OR VEHICLE OR TRUCK
L5 QUE PLU=ON BUS OR VAN OR TRAILER
L6 QUE PLU=ON BOAT OR PLAIN OR CRAFT
L7 QUE PLU=ON SHIP OR TRAIN
L8 QUE PLU=ON L4 OR L5 OR L6 OR L7
L9 ( 51216)SEA FILE=USPAT PLU=ON L3 (5A) L8
L10 QUE PLU=ON BEHAVIOR OR OPERAT####
L11 QUE PLU=ON WORK#### OR SPEED OR ENGINE
L12 QUE PLU=ON OIL OR TEMPERATURE OR ACCELERAT####
L13 QUE PLU=ON BRAK##### OR OCCUP##### OR CABIN
L14 QUE PLU=ON DRIV#### OR FLIGHT OR FLY####
L15 QUE PLU=ON CONDITION OR HABIT
L16 QUE PLU=ON L10 OR L11 OR L12 OR L13
L17 QUE PLU=ON L14 OR L15 OR L16
L18 ( 21956)SEA FILE=USPAT PLU=ON L9 (5A) L17
L19 QUE PLU=ON COST OR PRICE OR FEE
L20 QUE PLU=ON VALUE OR PREMIUM
L21 QUE PLU=ON L19 OR L20
L22 QUE PLU=ON INSURA##### OR POLICY
L23 ( 935)SEA FILE=USPAT PLU=ON L21 (5A) L22
L24 QUE PLU=ON ALTER####### OR MODIF########
L25 QUE PLU=ON CHANG#####
L26 QUE PLU=ON L24 OR L25
L27 ( 102539)SEA FILE=USPAT PLU=ON L21 (5A) L26
L28 ( 274)SEA FILE=USPAT PLU=ON L18 (5A) L24
L29 ( 974)SEA FILE=USPAT PLU=ON L18 (5A) L25
L30 ( 66)SEA FILE=USPAT PLU=ON L18 (5A) L27
L31 29 SEA FILE=USPAT PLU=ON L23 (L) (L18 OR L28 OR L29 OR L30)

US PAT NO: 4,638,295 [IMAGE AVAILABLE] L31: 20 of 29
DATE ISSUED: Jan. 20, 1987
TITLE: Vehicular movement indicator safety system
INVENTOR: Robert B. Middlebrook, 47 Hemlock Cir., Princeton, NJ 08540
W. Bard Turner, 7 Bryant Rd., Lexington, MA 02173
APPL-NO: 06/607,954
DATE FILED: May 7, 1984
US-CL-CURRENT: 340/465, 476; 701/1

US PAT NO: 4,067,061 [IMAGE AVAILABLE] ANS: 1
DATE ISSUED: Jan. 3, 1978
TITLE: Monitoring and recording system for vehicles
US-CL-CURRENT: 360/5; 346/33D; 364/920, 925, 925.2, 952, 952.4, 952.5; 377/21, 24, 24.1; 701/29

ABSTRACT: A system is disclosed adapted to be carried on board a vehicle, such as a heavy duty truck operating on an interstate basis, wherein various operational and reference parameters of the vehicle, such as, the State of operation, mileage, fuel consumed, fuel purchased and time periods, are monitored and are recorded onto a recording medium, such as a tape cassette, which is removable from the system at the end of a trip, with the data recorded thereon being usable to produce a printout of the monitored parameters.

US PAT NO: 4,234,926 [IMAGE AVAILABLE] ANS: 2
DATE ISSUED: Nov. 18, 1980
TITLE: System & method for monitoring & diagnosing faults in environmentally controlled containers, such system and method being especially adapted for remote computer controlled monitoring of numerous transportable containers over existing on-site power wiring
US-CL-CURRENT: 702/188; 364/131, 138, 185, 919.5, 920, 921.8, 926, 927, 927.2, 927.4, 927.8, 927.82, 927.83, 927.92, 927.95, 927.99, 929.4, 930, 931, 931.4, 932.8, 935, 935.2, 935.3, 937, 939, 939.5, 940, 940.1, 940.2, 942, 943.9, 944.91, 947, 947.2, 949, 949.5, 952, 952.1, 959.1, 964, 964.1, 965, 965.5, 965.76, DIG.2

ABSTRACT: An environmentally controlled transportable container monitoring system including a data acquisition unit mounted to each container monitorable by the system, and a central microcomputer system located at a container storage site, e.g. a container ship or land based terminal, which communicates over existing on-site power wiring with the data acquisition unit of all containers plugged into the on-site power. The container data acquistion unit includes electronics forming a microcomputer adapted to store current container parameters, prepare a history of the container's past condition, and alert a system operator or other persons of an "out of limit" condition, a possible container malfunction, and to diagnose the source of the malfunction. A signal transfer circuit is provided in the data acquisition unit and a separate signal transfer unit is provided in proximity to the central monitoring microcomputer system wherein serial data outputs from the system's microcomputers can be conditioned for transmission over the existing on-site wiring to permit bidirectional communication over such wiring. The system provides for minimizing noise induced operating problems and for detecting those problems when they occur; it also preferably generates information for identifying the precise location of each container within a particular storage area by means of a location transmitter provided at each defined on-site container storage location.

US PAT NO: 4,234,926 [IMAGE AVAILABLE] ANS: 2
DATE ISSUED: Nov. 18, 1980
TITLE: System & method for monitoring & diagnosing faults in environmentally controlled containers, such system and method being especially adapted for remote computer controlled monitoring of numerous transportable containers over existing on-site power wiring
INVENTOR: Clifford G. Wallace, Alameda, CA
Carl von Isenburg, Westfield, NJ
Michael D. Chun, Bud Lake, NJ
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Robert T. Bryant, San Leandro, CA
APPL-NO: 05/966,785
DATE FILED: Dec. 5, 1978
US-CL-CURRENT: 702/188; 364/131, 138, 185, 919.5, 920, 921.8, 926, 927, 927.2, 927.4, 927.8, 927.82, 927.83, 927.92, 927.95, 927.99, 929.4, 930, 931, 931.4, 932.8, 935, 935.2, 935.3, 937, 939, 939.5, 940, 940.1, 940.2, 942, 943.9, 944.91, 947, 947.2, 949, 949.5, 952, 952.1, 959.1, 964, 964.1, 965, 965.5, 965.76, DIG.2

US PAT NO: 4,258,421 [IMAGE AVAILABLE] ANS: 3
DATE ISSUED: Mar. 24, 1981
TITLE: Vehicle monitoring and recording system
INVENTOR: John E. Juhasz, Lake Orion, MI
Hansel O. Williams, Troy, MI
APPL-NO: 06/020,622
DATE FILED: Mar. 14, 1979
REL-US-DATA: Continuation-in-part of Ser. No. 881,221, Feb. 27, 1978, abandoned.
US-CL-CURRENT: 701/35; 340/870.16; 701/123

US PAT NO: 4,745,564 [IMAGE AVAILABLE] ANS: 4
DATE ISSUED: May 17, 1988
TITLE: Impact detection apparatus
INVENTOR: Bernard R. Tennes, Charlotte, MI
Galen K. Brown, Okemos, MI
Joseph R. Clemens, East Lansing, MI
Henry A. Affeldt, East Lansing, MI
Siamak Siyami, Tehran, Iran (Islamic Republic of)
Brian A. Klug, Buchanan, MI
Hans R. Zapp, Okemos, MI
APPL-NO: 06/827,142
DATE FILED: Feb. 7, 1986
US-CL-CURRENT: 702/141; 73/489; 346/33D, 33R; 374/102, 170; 702/187

US PAT NO: 4,258,421 [IMAGE AVAILABLE] ANS: 3
DATE ISSUED: Mar. 24, 1981
TITLE: Vehicle monitoring and recording system
US-CL-CURRENT: 701/35; 340/870.16; 701/123

ABSTRACT: A device monitoring and recording system is described which is particularly applicable to on-board vehicle monitoring and recording of operating engine parameters. The system comprises a plurality of sensors for sensing operating parameters of the engine and for generating data signals in response thereto, a data processing unit for receiving the data signals and a portable data link for extracting the processed data. Means are also provided for analyzing the processed data in remote computing means to provide printouts for record keeping, maintenance and diagnostic purposes.

US PAT NO: 4,745,564 [IMAGE AVAILABLE] ANS: 4
DATE ISSUED: May 17, 1988
TITLE: Impact detection apparatus
US-CL-CURRENT: 702/141; 73/489; 346/33D, 33R; 374/102, 170; 702/187

ABSTRACT: An apparatus for measuring and recording accelerations or other physical quantities experienced by easily damaged items of commerce such as fruit and electronic computers. A triaxial accelerometer or other suitable sensor produces signals which are sampled by a microprocessor operating according to a program stored in a read-only memory. When the sampled accelerations or other physical quantities exceed a predetermined threshold, samples are stored in a random access memory, along with their times of occurrence. The apparatus provides a serial port for reading out the recorded acceleration data. The data may then be subjected to further processing externally.

US PAT NO: 5,500,806 [IMAGE AVAILABLE] ANS: 5
DATE ISSUED: Mar. 19, 1996
TITLE: Data logging in a voltage regulator controller
US-CL-CURRENT: 364/528.33; 323/255; 324/416

ABSTRACT: A voltage regulator controller including three types of data logs which are operator selectable and configurable. An operator can enable data logging to occur at specific times and intervals. The voltage regulator controller includes a real time clock/calendar and interval timer to support this function. In a preferred embodiment, the controller includes an event log, a snapshot interval log and a minimum/maximum metered parameter log. Advantageously, the event log can be programmed to monitor configuration changes made from the voltage regulator controller's front panel or from a remote device. The voltage regulator controller also includes a memory card interface which enables the log contents to be uploaded to a removable PCMCIA standard memory card.

| | | |
|---|---|---|
| US PAT NO: | 5,500,806 [IMAGE AVAILABLE] | ANS: 5 |
| DATE ISSUED: | Mar. 19, 1996 | |
| TITLE: | Data logging in a voltage regulator controller | |
| INVENTOR: | Michael A. Bellin, Brandon, MS | |
| | Carl Laplace, Raleigh, NC | |
| | John J. Trainor, Wake Forest, NC | |
| | Mark Hoffmann, Chapel Hill, NC | |
| APPL-NO: | 08/154,315 | |
| DATE FILED: | Nov. 18, 1993 | |
| US-CL-CURRENT: | 364/528.33; 323/255; 324/416 | |

| | | |
|---|---|---|
| US PAT NO: | 5,694,322 [IMAGE AVAILABLE] | ANS: 6 |
| DATE ISSUED: | Dec. 2, 1997 | |
| TITLE: | Method and apparatus for determining tax of a vehicle | |
| INVENTOR: | Kenneth R. Westerlage, Fort Worth, TX | |
| | William C. Kennedy, III, Dallas, TX | |
| | William L. Hoag, Farmers Branch, TX | |
| APPL-NO: | 08/437,404 | |
| DATE FILED: | May 9, 1995 | |
| US-CL-CURRENT: | 705/417; 340/870.07; 705/30, 31, 34 | |

US PAT NO: 5,694,322 [IMAGE AVAILABLE] ANS: 6
DATE ISSUED: Dec. 2, 1997
TITLE: Method and apparatus for determining tax of a vehicle
US-CL-CURRENT: 705/417; 340/870.07; 705/30, 31, 34

ABSTRACT: An apparatus for determining a tax for a vehicle (20) includes a positioning device (80) operable to determine a plurality of vehicle positions along a route traveled by the vehicle (20). A memory (102) stores geographic information defining a plurality of taxing regions through which the route of the vehicle (20) passes. An odometer (109) measures the distance traveled by the vehicle (20). A processor (100) is coupled to the positioning device (80), the memory (102), and the odometer (109). The processor (100) receives vehicle positions from the positioning device (80), geographic information from the memory (102), and optionally the measured distance from the odometer (109). The processor (100) determines the tax for the vehicle (20) in at least one taxing region through which the route of the vehicle (20) passes in response to the vehicle positions, the geographic information, and the measured distance.

US PAT NO: 5,797,134 [IMAGE AVAILABLE] L31: 3 of 29
DATE ISSUED: Aug. 18, 1998
TITLE: Motor vehicle monitoring system for determining a cost of insurance
US-CL-CURRENT: 705/400, 4

ABSTRACT: A method and system of determining a cost of automobile insurance based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics. The cost is adjustable retrospectively and can be prospectively set by relating the driving characteristics to predetermined safety standards. The method comprises steps of monitoring a plurality of raw data elements representative of an operating state of the vehicle or an action of the operator. Selected ones of the raw data elements are recorded when the ones are determined to have an identified relationship to safety standards. The selected ones are consolidated for processing against an insurer profile and for identifying a surcharge or discount to be applied to a base cost of automobile insurance. A final cost is produced from the base costs and the surcharges or discounts.

BSUM(2) The present invention relates to data acquisition and processing systems, and particularly to a system for **monitoring** motor **vehicle** operational characteristics and **driver** **behavior** to obtain increased amounts of data relating to the safety of use for purposes of providing a more accurate determination of a **cost** of **insurance** for the vehicle.

BSUM(3) Conventional methods for determining **costs** of motor vehicle **insurance** involve gathering relevant historical data from a personal interview with the applicant for the insurance and by referencing the applicant's. . .

BSUM(25) The classifications, such as age, are further broken into actuarial classes, such as 21 to 24, to develop a unique vehicle **insurance** **cost** based on the specific combination of actuarial classes for a particular risk. For example, the following information would produce a unique vehicle **insurance** **cost**.

BSUM(41) A . . . the vehicle. Accordingly, the limited amount of accumulated relevant data and its minimal evidential value towards computation of a fair **cost** of **insurance** has generated a long-felt need for an improved system for more reliably and accurately accumulating data having a highly relevant. . .

BSUM(42) Many . . . or emergency. It has even been suggested to detect and record seatbelt usage to assist in determination of the vehicle **insurance** **costs** (U.S. Pat. No.4,667,336).

BSUM(43) The . . . acquisition, recordal and communication system of data which would be both comprehensive and reliable in predicting an accurate and adequate **cost** of **insurance** for the vehicle. Since the type of operating information acquired and recorded in prior art systems was generally never intended to be used for determining the **cost** of vehicle **insurance**, the data elements that were monitored and recorded therein were not

directly related to predetermined safety standards or the determining. . . problem of recording and subsequently compiling the relevant data for an accurate determination of an actuarial profile and an appropriate **insurance** **cost** therefor.

BSUM(44) Current . . . systems comprise electronic systems readily adaptable for modification to obtain the desired types of information relevant to determination of the **cost** of **insurance**. Vehicle tracking systems have been suggested which use communication links with satellite navigation systems for providing information describing a vehicle's. . .

BSUM(45) The . . . invention contemplates a new and improved motor vehicle monitoring, recording and communication system, which primarily overcomes the problem of determining **cost** of vehicle **insurance** based upon data which does not take into consideration how a specific vehicle is operated. The subject invention will base. . . rating of the operator and the vehicle in an actuarial class which has a vastly reduced rating error over conventional **insurance** **cost** systems. Additionally, the present invention allows for frequent (monthly) adjustment to the cost of coverage because of the changes in. . .

BSUM(47) In accordance with the present invention, there is disclosed a method of determining a **cost** of automobile **insurance** based upon monitoring, recording and communicating data representative of operator and vehicle driving characteristics, whereby the cost is adjustable by. . . consolidated for processing against an insured profile and for identifying a surcharge or discount to be applied to a base **cost** of automobile **insurance**. The total **cost** of **insurance** obtained from combining the base **cost** and surcharges or discounts is produced as a final cost to the operator.

BSUM(51) The present invention will use information acquired from the vehicle to more accurately assess vehicle usage and thereby derive **insurance** **costs** more precisely and fairly. Examples of possible actuarial classes developed from vehicle provided data include:

BSUM(67) These . . . of the vehicle and the behaviors demonstrated by the driver. This will allow the consumers unprecedented control over the ultimate **cost** of their vehicle **insurance**.

BSUM(84) Other benefits and advantages of the subject new vehicle **insurance** **cost** determination process will become apparent to those skilled in the art upon a reading and understanding of the specification.

DETD(2) Referring . . . the FIGURES show an apparatus and method for monitoring, recording and communicating insurance related data for determination of an accurate **cost** of **insurance** based upon evidence relevant to the actual operation and in particular the relative safety of that operation. Generally, a vehicle. . . similar vehicles in a similar geographic area. The invention allows for the measure of the actual data while the motor **vehicle** is being **driven**. Such data **measurement** will allow the **vehicle** user to directly control his/her **insurance** **costs** by operating the vehicle in a manner which

he/she will know will evidence superior safety of operation and a minimal. . .

DETD(12) With . . . on-board computer 300 monitors and records various sensors and operator actions to acquire the desired data for determining a fair **cost** of **insurance**. Although not shown therein, a plurality of **operating** **sensors** are associated with the motor **vehicle** to monitor a wide variety of raw data elements. Such data elements are communicated to the computer through a connections. . . cable which is operatively connected to the vehicle data bus 304 through an SAE-J1978 connector, or OBD-II connector or other **vehicle** **sensors** 306. A **driver** input device 308 is also operatively connected to the computer 300 through connector 307 and cable 302. The computer is. . .

DETD(13) FIG. . . . need for assistance or for satisfaction of various threshold factors which need to be satisfied before the vehicle can be **operated**. The physical **operation** of the **vehicle** is **monitored** through various **sensors** 412 in **operative** connection with the **vehicle** data **bus**, while additional **sensors** 414 not normally connected to the data bus can be in direct communication with the computer 300 as will hereinafter. . .

DETD(92) 1. Excessive **speed**. The reading of the **vehicle** **speed** **sensors** would indicate the **vehicle** is exceeding the **speed** limit. Time would also be measured to determine if the behavior is prolonged.

DETD(99) At . . . period. This insured profile includes the information about coverages including limits and deductibles, which are necessary for establishing the appropriate **cost** of **insurance** for the subject insured. At step 214, the acquired consolidated file information from step 210 and the overall insured profile. . .

US PAT NO: 5,499,182 [IMAGE AVAILABLE] L31: 7 of 29
DATE ISSUED: Mar. 12, 1996
TITLE: Vehicle driver performance monitoring system
US-CL-CURRENT: 701/35; 340/439; 701/29

ABSTRACT: A vehicle driver performance monitoring system is provided. A plurality of vehicle component sensors (40-43) suitably mounted to a host vehicle measure a plurality of vehicle component parameters indicative of a host vehicle's driver performance. A microprocessor module (1) detachably coupled to the vehicle mounting unit (2) affixed to and uniquely designated for a given host vehicle poles each vehicle sensor (40-43) of that host vehicle to read, process, and store the vehicle operation data generated thereby. A playback mounting unit (3) is provided to facilitate the connection of a remote computer to the host vehicle's microprocessor module (1) in order to establish digital communication whereby the vehicle operation data and the analysis results processed therein are retrieved and displayed for a user.

BSUM(2) The . . . monitoring system is generally directed to an onboard computer system for operation on a designated host vehicle. More specifically, the **vehicle** **driver** performance **monitoring** system is an onboard computer system which has in place the hardware and software means to **sense** various **vehicle** **operation** parameters, characterize the **driving** **habits** of the current driver based on those parameters with respect to various specified determinants, and make available processed information for. . .

BSUM(3) The . . . the physical manipulation of that vehicle and particularly in the parametric variations of that vehicle's electrical/mechanical components. Accordingly, the subject **vehicle** **driver** performance **monitoring** system includes a plurality of parametric sensors which measure the physical parameters associated with the host vehicle components to which. . .

BSUM(4) The need for such driver performance assessments, as provided by the subject **vehicle** **driver** performance **monitoring** system, is manifest in several readily apparent applications. First, parents of driving-aged children well recognize the demonstrated tendency of many. . . children's driving habits and, in many cases, lack the information to even suspect that their children in fact exercise poor **driving** **habits**. The subject **vehicle** **driver** performance **monitoring** system would provide the continually monitored driving performance information which they critically need in order to maintain control over their. . .

BSUM(5) Businesses also possess a discernable need for the driving performance assessments provided by the subject **vehicle** **driver** performance **monitoring** system. It is imperative for any business owning employee-**operated** **vehicles** to **monitor** the **driving** **habits** of their employees during the operation of those vehicles. The current practice of many such businesses is to visibly mount. . . it also heightens for businesses the expenses they must allocate for costs associated with otherwise avoidable accidents and the increased **insurance** **premiums** resulting from them. Moreover, the lack of satisfactory means to effectively monitor employee driving habits deprives businesses of an opportunity. . .

BSUM(6) Another significant application anticipated for the subject **vehicle** **driver** performance **monitoring** system is in the automobile insurance business wherein accurate assessments of driving habits would facilitate accurate and fair allocations of **costs**. As most automobile **insurance** companies currently rely primarily on age, sex, and the driving record of the insured individual in estimating the risk of. . . insurance payouts caused by that individual, only marginal estimates of such risks are attained; and unfair assessments of the applicable **insurance** **premium** for that individual often result. Reckless though fortunate drivers, who but for the care fortuitously employed by other drivers, have avoided serious automobile accidents are regularly assessed an **insurance** **premium** as low as, if not lower than, more careful drivers but unfortuitous drivers who, except for a single unavoidable traffic. . . caring vehicle owners who invest substantial effort to minimize the wear and tear on their vehicles. The accurate assessments of **driving** performance provided by the subject **vehicle** **driver** performance **monitoring** system would enable automobile insurance companies to remedy these inequities and, as well, reduce their own expenses by appropriately allocating. . .

BSUM(8) Onboard . . . computer system heretofore known which continually monitors the driver performance of a host vehicle as comprehensively as does the subject **vehicle** **driver** performance **monitoring** system.

BSUM(9) For . . . a plurality of vehicle-mounted sensors. The onboard computer in that system periodically receives and stores the parametric values associated with **vehicle** **braking** **sensed** by the **sensors**. The data thus generated by that computer is then available to be read later by an instructor who will compare the recorded parametric values to formulate further instructive steps. Unlike the subject **vehicle** **driver** performance **monitoring** system, however, that system does not perform evaluative functions on the data. Any evaluations to be made in light of. . . during those discrete time intervals related to an instructional session. It is not performed in correlation continually with the host **vehicle**'s **operation**, as is the **monitoring** in the subject **vehicle** **driver** performance **monitoring** system.

BSUM(10) In . . . reveal no apparent need to question driver integrity; therefore no driver integrity checking means are therein provided. In the subject **vehicle** **driver** performance **monitoring** system, however, the integrity of the host vehicle driver is an ever-present concern, the compromise of which would wholly undermine the utility of the system. The subject **vehicle** **driver** performance **monitoring** system therefore includes means for recording any attempt to either operate a given system on a vehicle other than the. . .

BSUM(11) U.S. Pat. No. 5,034,894 directs itself to a self-diagnosis computer system onboard a motor vehicle wherein a plurality of **detectors** are mounted on that **vehicle**'s **engine** to **detect** any aberrant **operating** **conditions**. Although the computer system there performs continual **monitoring** while the **vehicle** is in **operation**, no provision is made for the assessment of driver performance based on any sensed parameters.

BSUM(12) Similarly, . . . performance. Various transducers for continually monitoring various vehicle parameters are employed in that system; however, comprehensive means for analyzing the **measured** **vehicle** parameters to characterize or assess **driver** performance, per se, are not provided.

US PAT NO: 5,430,432 [IMAGE AVAILABLE] L31: 8 of 29
DATE ISSUED: Jul. 4, 1995
TITLE: Automotive warning and recording system
INVENTOR: Elie Camhi, 131 Country Ridge Rd., Scarsdale, NY 10583
Lawrence S. Kamhi, 30 Saddleview Ct., Fairfield, CT 06432
APPL-NO: 08/278,991
DATE FILED: Jul. 22, 1994
REL-US-DATA: Continuation of Ser. No. 992,246, Dec. 14, 1992, abandoned.
US-CL-CURRENT: 340/438; 180/171; 307/10.1; 340/439, 441, 459; 701/35; 702/41, 141

US PAT NO: 5,499,182 [IMAGE AVAILABLE] L31: 7 of 29
DATE ISSUED: Mar. 12, 1996
TITLE: Vehicle driver performance monitoring system
INVENTOR: Jeffrey Ousborne, 5606 Foxview Ct., Clarksville, MD 21029
APPL-NO: 08/350,848
DATE FILED: Dec. 7, 1994
US-CL-CURRENT: 701/35; 340/439; 701/29

US PAT NO: 5,797,134 [IMAGE AVAILABLE] L31: 3 of 29
DATE ISSUED: Aug. 18, 1998
TITLE: Motor vehicle monitoring system for determining a cost of insurance
INVENTOR: Robert John McMillan, Tampa, FL
Alexander Dean Craig, Moreland Hills, OH
John Patrick Heinen, Tampa, FL
APPL-NO: 08/592,958
DATE FILED: Jan. 29, 1996
US-CL-CURRENT: 705/400, 4

US PAT NO: 4,067,061 [IMAGE AVAILABLE] ANS: 1
DATE ISSUED: Jan. 3, 1978
TITLE: Monitoring and recording system for vehicles
INVENTOR: John Emil Juhasz, Lake Orion, MI
APPL-NO: 05/559,509
DATE FILED: Mar. 18, 1975
US-CL-CURRENT: 360/5; 346/33D; 364/920, 925, 925.2, 952, 952.4, 952.5; 377/21, 24, 24.1; 701/29

US PAT NO: 5,430,432 [IMAGE AVAILABLE] L31: 8 of 29
DATE ISSUED: Jul. 4, 1995
TITLE: Automotive warning and recording system
US-CL-CURRENT: 340/438; 180/171; 307/10.1; 340/439, 441, 459; 701/35; 702/41, 141

ABSTRACT: An automotive unsafe condition recorder is provided having one or more automotive condition sensors coupled to the input of a timer equipped processor. An indicator for alerting the operator is coupled to an output of the processor, which the processor energizes in response to a signal level from the sensor indicating the existence of a predetermined unsafe operating condition. If the unsafe operating condition is not corrected within a predetermined time, the processor transmits information pertaining to the unsafe condition to a storage unit, which accumulates the information for later review.

BSUM(5) This . . . and maintenance personnel, airline officials for evaluation of the craft and crew, regulatory authorities for incident or crash analysis, and **insurance** companies for liability and **premium** determinations.

BSUM(10) The . . . such a device would be multiple. Monitored drivers would be motivated to drive more safely by the reward of lower **insurance** **premiums**, which could be lowered further if they prove themselves responsible. Insurance companies could eliminate persistent speeders and unsafe drivers, or. . .

BSUM(11) Accordingly, a need exists for a device which can **monitor** **vehicle** **operating** parameters and alert the **operator** to predetermined unsafe conditions, allow a short time for correction of those conditions, and if uncorrected in that time, record. . .

BSUM(24) According . . . has means for retrieval of recorded information. The processor inputs are coupled to signal sources which provide signals indicative of **monitored** **vehicle** **operation** variables, at least one of such variables being vehicle speed. The signal input is routed through the processor which is. . . receded below the predetermined value, initiates accumulation by the storage unit of information pertaining to one or more of the **monitored** **vehicle** **operating** variables for later review and analysis.

US PAT NO: 4,638,295 [IMAGE AVAILABLE] L31: 20 of 29
DATE ISSUED: Jan. 20, 1987
TITLE: Vehicular movement indicator safety system
US-CL-CURRENT: 340/465, 476; 701/1

ABSTRACT: A vehicular movement indicator safety system consisting of motion and status sensors on the dynamic moving systems of a vehicle, a programmed microprocessor control unit, and conventional signal indicators. The microprocessor is programmed to integrate data from sensors related to wheel, steering, brake, engine and transmission systems to determine the exact nature of changes in vehicular movement resulting from operation of one or more of the dynamic systems, to distinguish between a driver's signaled intent to turn or make a change in vehicular movement and the actual onset of the turn or change as determined by concurrent activation of dynamic systems, and to immediately activate signal indicators to produce clear, unambiguous and readily perceived signals corresponding to the changes in vehicular movement. The vehicular movement indicator safety system generates instantaneous signals alerting drivers to a change, eliminates the uncertainty, ambiguity and confusion prevalent with existing turn signal and brake indicator systems, and significantly enhances ability of drivers to quickly perceive and react to changes in movement of other vehicles in substantially all traffic situations and under adverse as well as normal visibility and weather conditions.

DETD(3) The . . . year and 2,000,000 disabling injuries annually in the United States and which cause billions of dollars in expenditures for automobile **insurance**, repairs, and other accident related **costs**. The VMISS described in this disclosure gains a critical and effective margin of response time through the use of advanced. . .

DETD(10) The **engine** and **vehicle** **sensor** group 104 includes a speedometer cable pick off sensor 74, an engine rpm (ignition primary) sensor 78 and a diesel. . . sensors in group 102 is to indicate the intention of the vehicle to make a turn. The purpose of the **engine** and **vehicle** **sensors** in group 104 is to indicate the committment of the vehicle to the turn anticipated by the switches in group. . .

DETD(26)

| Inputs | |
|---|---|
| **Sensor** | **Condition** |
| **Vehicle** Wheel Position Switch 52 | Right hand turn |
| Speedometer Cable pick-off Sensor 74 | Moving, increasing speed (i.e. acceler-. . . |